



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,297	12/21/2001	Helene Derand	HO-P02352USO	9070

26271 7590 09/20/2005
FULBRIGHT & JAWORSKI, LLP
1301 MCKINNEY
SUITE 5100
HOUSTON, TX 77010-3095

EXAMINER

BASTIANELLI, JOHN

ART UNIT PAPER NUMBER

3751

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/030,297

Applicant(s)

DERAND ET AL.

Examiner

John Bastianelli

Art Unit

3751

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25,27,28,30 and 31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25,27,28,30 and 31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

RCE

1. The RCE filed July 5, 2005 is accepted and examination of the claims filed that day are examined below.

Claim Suggestions

2. Claims 1 and 13 have the following informalities: In claim 1, line 6 and claim 13, lines 7-8 cite "a channel" and "a chamber" which are already cited previously. Is this a new channel or chamber or the same as the one cited before. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7, 12-14, 16-24, 27, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horres, Jr. US 5,368,571 in view of Moles US 6,406,605.

Horres discloses a micro channel structure (Figs. 3-4) that is present on a plate 25 with a plug of polymer 30 material that is an intelligent polymer having the property of responding to externally applied energy by changing its volume with a first state blocking the channel 28 and in the second state providing pathway for liquid flow. The polymer is responsive to an electric field. It is partially anchored and seen as chemically or mechanically bonded to the inner surface. The

Art Unit: 3751

inner surface is silicon and is made by etching (col. 9, lines 28-39). Claim 27 is a product by process therefore is not given patentable weight. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product in the prior art, the claim is unpatentable even though the prior product was made by a different process (see MPEP 2113). The microchannel and chamber are defined by two planar surfaces (27 and 30) applied to each other (Fig. 3). The method is seen as practiced by the apparatus. Horres lacks a mention of the size of the channel. Moles discloses a micro channel size of 50 to 500 microns (col. 2, lines 47-53). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

5. Alternatively, claims 1-10 and 12 are rejected under 35 U.S.C. 103(a) as being anticipated by Onishi et al. US 5,547,472 in view of Moles US 6,406,605.

Onishi discloses a plug of polymer material that responds to externally applied energy by changing its volume, having a first state blocking a channel and a second state allowing fluid flow in the channel, selectively applying energy to the polymer to cause the volume to change to one of the first or second states. The polymer is pH responsive or electrical or chemical or heat or light (col. 5, lines 8-40). The polymer is partially anchored and chemically bonded and anchored by a mechanical obstruction to the channel (col. 4, line 56 - col. 5, line 7). The channel

Art Unit: 3751

surface is plastic being polycarbonates or rubber. The channel surface is grafted. The polymer is polymethacrylates (cl. 3). There is a valve system having a plurality of chambers. The substrate is circular and rectangular. The method is seen as practiced by the apparatus. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

6. Claims 8-10, 15, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Horres, Jr. US 5,368,571 in view of Onishi et al. US 5,547,472 in view of Moles US 6,406,605.

Horres lacks heat and light responsive polymers. Onishi discloses heat and light responsive polymers (col. 5, lines 8-40). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer of Horres heat responsive as disclosed by Onishi in order to provide a method of actuation, which would provide a method of actuation that is an easy method of providing power. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer of Horres light responsive as disclosed by Onishi in order to provide a method of actuation, which would provide a method of actuation that is a cheap source of power. Horres lacks a polymer made of polymethacrylate. Onishi discloses a polymer made of polymethacrylates (cl. 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the plug out of

Art Unit: 3751

polymethacrylates as disclosed by Onishi in the valve of Horres in order to proved a plug that is easily produced. Horres lacks a structure made of polycarbonate. Onishi discloses a structure made of polycarbonate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the a structure made of polycarbonate as disclosed by Onishi in the valve of Horres in order to proved a structure that is easily produced. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horres, Jr. US 5,368,571 in view of Swatek US 6,015,266 in view of Moles US 6,406,605.

Horres lacks a magnetic responsive polymer. Swatek discloses a magnetic responsive polymer (col. 2, lines 17-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer of Horres magnetically responsive as disclosed by Swatek in order to provide a method of actuation, which would provide significant expansion in volume (col. 3, lines 2-8). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A

Art Unit: 3751

change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

8. Alternatively, claims 13-25 and 27-28, and claims 1-10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. US 5,547,472 in view of Moles US 6,406,605.

Onishi lacks a structure provided on a plate. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the structure as a plate as a matter of design choice, since it has been held that a change in the shape of the element involves only routine skill in the art. *In re Dailey*, 149 USPQ 47 (CCPA 1966). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

9. Alternatively, claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Onishi et al. US 5,547,472 in view of Swatek US 6,015,266 in view of Moles US 6,406,605.

Onishi lacks a magnetic responsive polymer. Swatek discloses a magnetic responsive polymer (col. 2, lines 17-28). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the polymer of Onishi magnetically responsive as disclosed by Swatek in order to provide a method of actuation, which would provide significant expansion in volume (col. 3, lines 2-8). It would have been obvious to one having ordinary skill in the art

Art Unit: 3751

at the time the invention was made to make the width and depth of the channel of Horres 50 to 500 microns as disclosed by Moles in order to make the valve small in order to provide valving for smaller devices and it would have been an obvious matter of design choice, since such a modification would have involved a mere change in the size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955).

Response to Arguments

10. Applicant's arguments with respect to claims 1-25, 27-28, and 30-31 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hayenga and Wise disclose channels with measurements between 1 and 1000 microns.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Bastianelli whose telephone number is (571) 272-4921. The examiner can normally be reached on M-F (9:30-7:00).

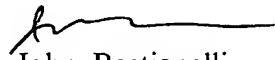
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on (571) 272-4835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3751

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JB

September 15, 2005


John Bastianelli
Primary Examiner
Art Unit 3751